

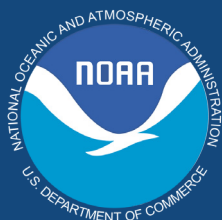
# NOAA Fisheries Service

## Alaska Fisheries Science Center



### Protecting Conserving Managing Marine Resources in Alaska

The Alaska Fisheries Science Center is a scientific research organization responsible for the development and implementation of NOAA's scientific research on marine resources in Alaska waters. Our research focuses on more than 250 fish and 42 marine mammal stocks off the coasts of the Bering Sea, Gulf of Alaska and Aleutian Islands.



National Marine Fisheries Service  
National Oceanic and Atmospheric Administration  
U.S. Department of Commerce

## Bearded Seal

*Erignathus barbatus*

**Length** 2.4 m (7.9ft) \*

**Weight** 250 kg (550 lbs)\*

**Age** 25-31 years old\*\*

\*average

\*\*maximum



### Range/Habitat

Bearded seals live in polar regions between 45°N and 85°N. In Alaska waters, they are found over the shallow (less than 200 m deep) continental shelf of the Bering, Chukchi, and Beaufort Seas. Bearded seals use sea ice to rest, give birth, and molt. As such, they are sensitive to changes in the environment that affect the timing and extent of sea ice formation and breakup. Bearded seals generally prefer pack ice habitats with many cracks or leads in the ice. Some seals move north in the spring and spend the summer along the ice edge in the Chukchi Sea, while others appear to remain in open water areas of the Bering and Chukchi Seas during this time.

### Diet/ Role in Ecosystem

Bearded seals are benthic feeders, feeding on crustaceans, mollusks, flounders, sculpins and cod.

### Reproduction

Bearded seals give birth to pups in the pack ice in late April and wean their pups 2-3 weeks later.

### Population

Reliable estimates for the current minimum population size, abundance and trend of the Alaska stocks of bearded seals are unavailable. However, there are crude estimates available in the historical literature. Early estimates of the Bering-Chukchi Sea population of bearded seals range from 250,000 to 300,000.

### Research

The Alaska Fisheries Science Center (AFSC) conducted aerial surveys in 1999-2000 to assess ringed and bearded seal distribution and abundance in the Chukchi Sea. Abundance of bearded seals could not be estimated because of a lack of information about haulout behavior, but the density of bearded seals was estimated at 0.07 – 0.14 seals/km<sup>2</sup>. Aerial surveys of bearded seals were also conducted south of St. Lawrence Island in March 2001.

From 2004 to 2006, in cooperation with the Alaska Native Village of Kotzebue/Kotzebue IRA and researchers with the Alaska Department of Fish and Game, AFSC scientists captured and instrumented 26 young-of-the-year bearded seals with satellite-linked depth recorders (SDRs). The SDR data were used to provide correction factors to account for animals that are in the water during abundance and distribution sightings surveys, information on habitat selection and seasonal movements, and information on the foraging behavior of these seals.

AFSC researchers have conducted a variety of surveys in 2006 and 2007 from multiple research ships to collect data for estimating the springtime abundances and distributions of ice seals in the Bering Sea. This work is done in cooperation with the Alaska Native Ice Seal Committee and the University of Tennessee.



### Management

The best way to conserve and provide stewardship of marine mammal populations that are critical to the subsistence lifestyle of Alaska Natives is through a partnership between the federal agency with management authority and the Alaska Natives using that resource. The AFSC has the responsibility for scientific research and stock assessments of ice seals in Alaska, and therefore has expertise and data relevant to many issues of concern of ice seal co-management partners. Recent workshops have resulted in the creation of an ice seal co-management committee consisting solely of representatives of Alaska Native tribes. The AFSC is an active participant in their meetings and is interested in developing a committee where both NMFS and Alaska Natives are equally represented. AFSC staff participates in co-management workshops and meetings to present scientific findings and advice relevant to ice seal ecology and harvest management, and provides financial support for genetic analyses on the stock structure of the four species of ice seals using tissues collected during field research projects.

### Issues

Bearded seals are a critical component of the Alaska Native subsistence harvest. There is significant annual variation in harvest numbers; however, the effect of the subsistence hunt on bearded seal populations cannot be assessed because there are no current and reliable population dynamics and ecological data. Abundance, population discreteness, annual survival and reproductive rates (together with information on food habits, seasonal movements, distribution, and habitat requirements for breeding, foraging, and molting) are all poorly known, but are essential to making sound management and conservation decisions. Current knowledge of vital rates in bearded seals is insufficient to allow for timely detection of changes in population trends. Without reliable estimates of bearded seal abundance, impacts of human activities on the population cannot be assessed.

Ecological data is particularly important with regard to the potential effects of global warming and the resulting changes in Arctic ice habitats. A reduction or change in ice cover would directly affect the survival of bearded seals, as they depend on seasonal ice for breeding and haul-out substrate.

Finally, interactions with commercial fisheries (both direct, such as entanglement in nets, and indirect, such as competition for resources) are not well known. However, given that there is little overlap between the distribution of commercial fisheries and the distribution of bearded seals, it is possible that commercial fishery impacts may be minor. This may change however, as fisheries continue to move farther northward.

#### For more information

##### Species information

[http://www.afsc.noaa.gov/nmml/species/species\\_bearded.php](http://www.afsc.noaa.gov/nmml/species/species_bearded.php)

##### Research at AFSC:

[http://www.afsc.noaa.gov/nmml/species/species\\_bearded.php#research](http://www.afsc.noaa.gov/nmml/species/species_bearded.php#research)

##### Management:

<http://www.fakr.noaa.gov/protectedresources/seals/ice.htm>

Photo credits: Michael Cameron and Gavin Brady, NOAA Fisheries

#### Questions or Comments?

email: [afsc.outreach@noaa.gov](mailto:afsc.outreach@noaa.gov)

